

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE DIVISIONAL OF APPLICATION OF      Group Art Unit: 1752  
KURT DIETLIKER ET AL.      Examiner: R. ASHTON  
  
APPLICATION NO: UNASSIGNED  
FILED: CONCURRENTLY HEREWITH  
FOR: ALKYLSULFONYLOXIMES FOR HIGH-  
RESOLUTION I-LINE PHOTORESISTS OF  
HIGH SENSITIVITY

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

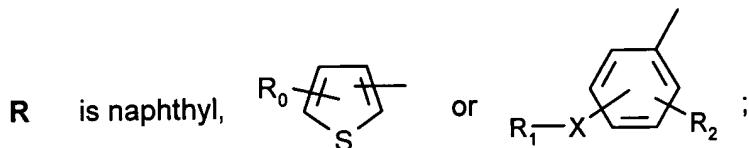
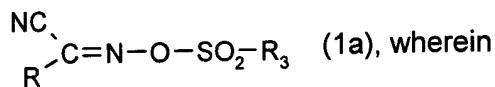
Kindly amend this application as follows prior to calculation of the filing fee and consideration on the merits.

IN THE CLAIMS

Please cancel claims 1-21.

Please add the following claims.

--22. (New) A compound of formula 1a



R<sub>0</sub> is either a R<sub>1</sub>-X group or R<sub>2</sub>;

X is a direct bond, an oxygen atom or a sulfur atom;

R<sub>1</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl or a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C<sub>1</sub>-C<sub>4</sub>alkyl and C<sub>1</sub>-C<sub>4</sub>-alkyloxy;

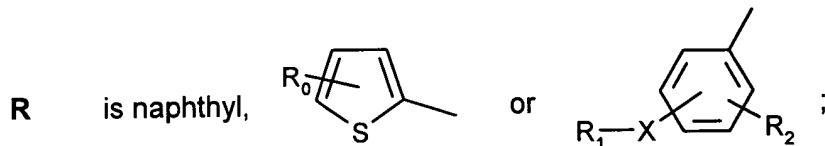
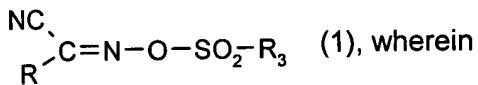
R<sub>2</sub> is hydrogen or C<sub>1</sub>-C<sub>4</sub>alkyl; and

R<sub>3</sub> is octyl or dodecyl.

23. A compound according to claim 22, which is selected from the group consisting of α-(octylsulfonyloxyimino)thiophene-2-acetonitrile, α-(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and α-(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

24. (New) A composition which can be activated by light, comprising

- at least one compound which may be crosslinked by the action of an acid and/or
- at least one compound which changes its solubility under the action of an acid, and
- as photoinitiator at least one compound of formula 1



R<sub>0</sub> is either an R<sub>1</sub>-X group or R<sub>2</sub>;

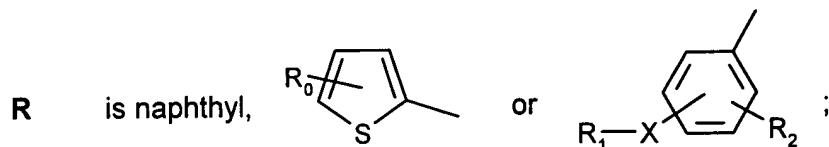
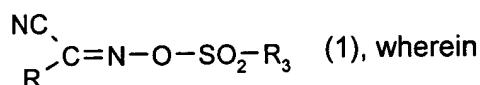
X is a direct bond or an oxygen atom;

R<sub>1</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl which is unsubstituted or substituted by phenyl, OH or C<sub>1</sub>-C<sub>4</sub>-alkoxy or which may be interrupted by an -O-atom, or R<sub>1</sub> is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C<sub>1</sub>-C<sub>4</sub>alkyl and C<sub>1</sub>-C<sub>4</sub>alkyloxy;

**R**<sub>2</sub> is hydrogen or C<sub>1</sub>-C<sub>4</sub>alkyl; and  
**R**<sub>3</sub> is octyl or dodecyl.

25. A composition according to claim 24, wherein the photoinitiator is selected from the group consisting of  $\alpha$ -(octylsulfonyloxyimino)thiophene-2-acetonitrile,  $\alpha$ -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and  $\alpha$ -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

26. (New) A chemically amplified positive photoresist which is developable in alkaline medium and which is sensitive to radiation in the wavelength from 340 to 390 nanometers, which resist is based on oxime alkyl sulfonates as photosensitive acid generator and contains a compound of formula 1



**R**<sub>0</sub> is either an R<sub>1</sub>-X group or R<sub>2</sub>;

**X** is a direct bond or an oxygen atom;

**R**<sub>1</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl which is unsubstituted or substituted by phenyl, OH or C<sub>1</sub>-C<sub>4</sub>-alkoxy or which may be interrupted by an -O-atom, or R<sub>1</sub> is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C<sub>1</sub>-C<sub>4</sub>alkyl and C<sub>1</sub>-C<sub>4</sub>alkyloxy;

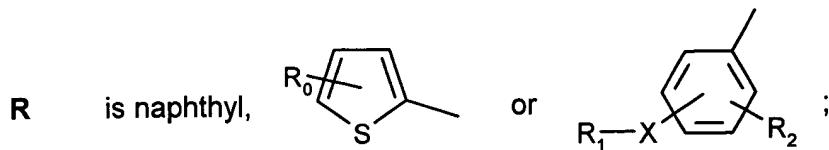
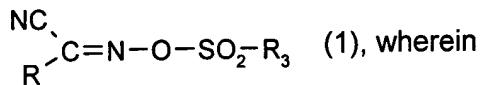
**R**<sub>2</sub> is hydrogen or C<sub>1</sub>-C<sub>4</sub>alkyl; and

**R**<sub>3</sub> is octyl or dodecyl.

as at least one of said oxime alkyl sulfonates.

27. (New) A chemically amplified positive photoresist according to claim 26 wherein the compound of formula 1 is selected from the group consisting of  $\alpha$ -(octylsulfonyloxyimino)thiophene-2-acetonitrile,  $\alpha$ -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and  $\alpha$ -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

28. (New) A chemically amplified negative photoresist which is developable in alkaline medium and which is sensitive to radiation in the wavelength from 340 to 390 nanometers, which resist is based on oxime alkyl sulfonates as photosensitive acid generator and contains a compound of formula 1



$\text{R}_0$  is either an  $\text{R}_1\text{-X}$  group or  $\text{R}_2$ ;

$\text{X}$  is a direct bond or an oxygen atom;

$\text{R}_1$  is hydrogen,  $\text{C}_1\text{-}\text{C}_4$ alkyl which is unsubstituted or substituted by phenyl, OH or  $\text{C}_1\text{-}\text{C}_4$ -alkoxy or which may be interrupted by an -O-atom, or  $\text{R}_1$  is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo,  $\text{C}_1\text{-}\text{C}_4$ alkyl and  $\text{C}_1\text{-}\text{C}_4$ alkyloxy;

$\text{R}_2$  is hydrogen or  $\text{C}_1\text{-}\text{C}_4$ alkyl; and

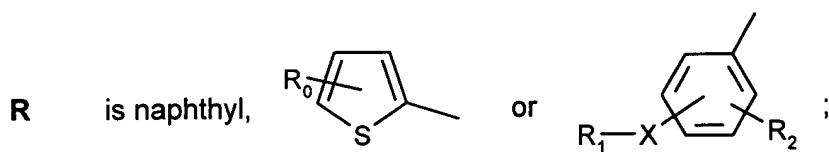
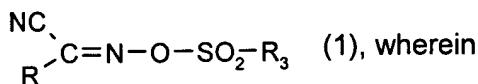
$\text{R}_3$  is octyl or dodecyl.

as at least one of said oxime alkyl sulfonates.

29. (New) A chemically amplified negative photoresist according to claim 28 wherein the compound of formula 1 is selected from the group consisting of  $\alpha$ -(octylsulfonyloxyimino)thiophene-2-acetonitrile,  $\alpha$ -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and  $\alpha$ -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

30. (New) A process for the production of images, which comprises coating a substrate with a composition comprising

- a) at least one compound which may be crosslinked by the action of an acid and/or
- b) at least one compound which changes its solubility under the action of an acid, and
- c) as photoinitiator at least one compound of formula 1



$\text{R}_0$  is either an  $\text{R}_1\text{-X}$  group or  $\text{R}_2$ ;

$\text{X}$  is a direct bond or an oxygen atom;

**R<sub>1</sub>** is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl which is unsubstituted or substituted by phenyl, OH or C<sub>1</sub>-C<sub>4</sub>-alkoxy or which may be interrupted by an -O-atom, or R<sub>1</sub> is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C<sub>1</sub>-C<sub>4</sub>alkyl and C<sub>1</sub>-C<sub>4</sub>alkyloxy;

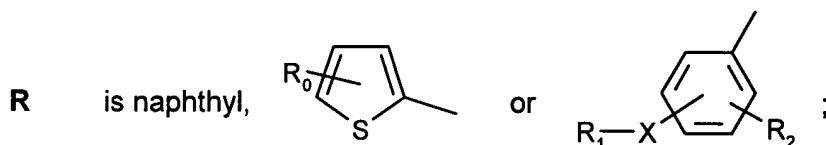
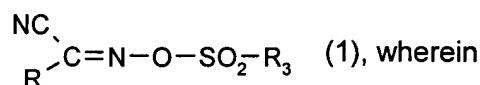
**R<sub>2</sub>** is hydrogen or C<sub>1</sub>-C<sub>4</sub>alkyl; and

**R<sub>3</sub>** is octyl or dodecyl.

irradiating the coating with radiation having a wavelength of 340 to 390 nanometers in a desired pattern and, after a heating period, removing the more soluble parts of the coating with an aqueous-alkaline developer.

31. (New) A process according to claim 30 for the production of images, wherein the compound of formula 1 is selected from the group consisting of  $\alpha$ -(octylsulfonyloxyimino)thiophene-2-acetonitrile,  $\alpha$ -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and  $\alpha$ -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

32. (New) A process for generating acids in a photoresist sensitive to radiation at a wavelength of up to 390 nanometers which comprises adding an oxime alkyl sulfonate compound of formula 1



**R<sub>0</sub>** is either an R<sub>1</sub>-X group or R<sub>2</sub>;

**X** is a direct bond or an oxygen atom;

**R<sub>1</sub>** is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl which is unsubstituted or substituted by phenyl, OH or C<sub>1</sub>-C<sub>4</sub>-alkoxy or which may be interrupted by an -O-atom, or R<sub>1</sub> is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C<sub>1</sub>-C<sub>4</sub>alkyl and C<sub>1</sub>-C<sub>4</sub>alkyloxy;

**R<sub>2</sub>** is hydrogen or C<sub>1</sub>-C<sub>4</sub>alkyl; and

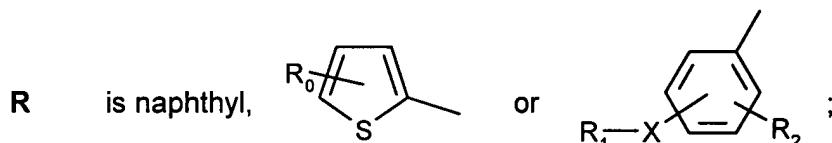
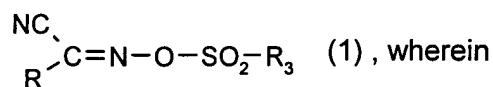
**R<sub>3</sub>** is octyl or dodecyl.

as photosensitive acid generator and irradiating with radiation at a wavelength of up to 390 nanometers.

33. (New) A process for generating acids in a photoresist sensitive to radiation at a wavelength of up to 390 nanometers according to claim 32 wherein the oxime alkyl sulfonate compound of formula 1 is selected from the group consisting of  $\alpha$ -(octylsulfonyloxyimino)thiophene-2-acetonitrile,  $\alpha$ -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and  $\alpha$ -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

34. (New) A process for the production of printing plates, color filters, resist materials and image recording materials, wherein a composition comprising

- a) at least one compound which may be crosslinked by the action of an acid and/or
- b) at least one compound which changes its solubility under the action of an acid, and
- c) as photoinitiator at least one compound of formula (1)



R<sub>0</sub> is either an R<sub>1</sub>-X group or R<sub>2</sub>;

X is a direct bond or an oxygen atom;

R<sub>1</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl which is unsubstituted or substituted by phenyl, OH or C<sub>1</sub>-C<sub>4</sub>-alkoxy or which may be interrupted by an -O-atom, or R<sub>1</sub> is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C<sub>1</sub>-C<sub>4</sub>alkyl and C<sub>1</sub>-C<sub>4</sub>alkyloxy;

R<sub>2</sub> is hydrogen or C<sub>1</sub>-C<sub>4</sub>alkyl; and

R<sub>3</sub> is octyl or dodecyl,

is irradiated with radiation at a wavelength of up to 390 nanometers.

35. (New) A process for the production of printing plates, color filters, resist materials and image recording materials according to claim 34, wherein the compound of formula 1 is selected from the group consisting of  $\alpha$ -(octylsulfonyloxyimino)thiophene-2-acetonitrile,  $\alpha$ -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and  $\alpha$ -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.--